

# Mumbai University

## QUESTION PAPER

### October – 2015

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**[B.Sc.IT – SEMESTER: VI]**  
**(CBSGS – 75:25 PATTERN)**

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- ❖ INTERNET TECHNOLOGIES
- ❖ DATA WAREHOUSING
- ❖ IPR AND CYBER LAWS
- ❖ PROJECT MANAGEMENT
- ❖ GEOGRAPHIC INFORMATION SYSTEMS

KAMAL T UNIVERSE

# **Mumbai University**

## **Question Paper**

**[CBSGS – 75:25 PATTERN]  
(OCTOBER – 2015)**

**PAPER - I**

**INTERNET  
TECHNOLOGIES**

**Time:** 2 ½ Hours**Total Marks:** 75**N.B.:** (1) All Question are Compulsory.

(2) Make Suitable Assumptions Wherever Necessary And State The Assumptions Made.

(3) Answer To The Same Question Must Be Written Together.

(4) Number To The Right Indicates Marks.

(5) Draw Neat Labeled Diagrams Wherever Necessary.

(6) Use of Non – Programmable Calculator is allowed.

**Q.1 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

- (A) How can the class of an IP Address in classful addressing be identified? Explain. (5)
- (B) Explain fields related to Fragmentation in IP. (5)
- (C) Explain Network Layer and Application Layer of ISO – OSI Model. (5)
- (D) Explain transition strategies from IPv4 to IPv6. (5)

**Q.2 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

- (A) Draw and explain Packet Format of ATMARP. (5)
- (B) Explain Agent Discovery Phase of Mobile Communication. (5)
- (C) Explain two node instability in RIP and its solutions. (5)
- (D) Explain Hello Message Packet Format of OSPF. (5)

**Q.3 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

- (A) Explain features of User Datagram Protocol. (5)
- (B) Explain Half Close in TCP Connection Termination. (5)
- (C) What is Silly Window Syndrome? Explain the Silly Window Syndrome created by the receiver. (5)
- (D) What are the different timers in TCP? Explain each in detail. (5)

**Q.4 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

- (A) Explain following terms with reference to SCTP: (5)
- (i) Transmission Sequence Number
- (ii) Stream Identifier
- (iii) Stream Sequence Number
- (B) Explain Data Chunk in detail. (5)
- (C) Draw and explain the DHCP Client Transition Diagram. (5)
- (D) Explain in detail Recursive and Iterative Resolution in DNS. (5)

**Q.5 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

- (A) Explain modes of operations in TELNET. (5)
- (B) What are the components of SSH? Explain. (5)
- (C) Explain the two FTP Connections. (5)
- (D) Explain Static, Dynamic and Active Documents. (5)

**Q.6 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

- (A) Explain the following email scenarios with the help of diagrams: (5)
- (i) When the sender and the receiver of an e-mail are on different mail servers.
- (ii) When sender is connected to the mail server via LAN or a WAN.
- (B) Write short notes on POP3 and IMAP4. (5)
- (C) Explain MPEG Video Compression. (5)
- (D) Explain Token Bucket Technique to Shape Traffic. (5)

**[TURN OVER]**

**Q.7 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

- (A) Explain the concept of Network Address Translation. (5)
  - (B) Explain Notification Message Format of BGP. Also explain various Error Codes and Error Subcodes. (5)
  - (C) Explain Byte Number, Sequence Number, Acknowledgement number with example. (5)
  - (D) With the help of a diagram, explain the Header Format of DNS Message in detail. (5)
  - (E) What are HTTP Persistent and Nonpersistent Connections? Explain. (5)
  - (F) Discuss the flow characteristics when dealing with multimedia. (5)
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**Question Paper**

**[CBSGS – 75:25 PATTERN]  
(OCTOBER – 2015)**

**PAPER - III**

**DATA**

**WAREHOUSING**

**Time:** 2 ½ Hours**Total Marks:** 75**N.B.:** (1) All Question are Compulsory.

(2) Make Suitable Assumptions Wherever Necessary And State The Assumptions Made.

(3) Answer To The Same Question Must Be Written Together.

(4) Number To The Right Indicates Marks.

(5) Draw Neat Labeled Diagrams Wherever Necessary.

(6) Use of Non – Programmable Calculator is allowed.

**Q.1 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

- (A) Differentiate between Star Schema and Snowflake Schema. (5)
- (B) Explain Slowly Changing Dimensions (SCD) and its type with example. (5)
- (C) List and explain the characteristics of Data Warehouse. (5)
- (D) Differentiate between Operational System and Informational System. (5)

**Q.2 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

- (A) Draw and explain the OWB Architecture. (5)
- (B) Write the steps to Import Metadata from a file. (5)
- (C) What is the purpose of Design Centre? Explain the following Windows: (5)
  - (i) Project Explorer Window
  - (ii) Connection Explorer Window
- (D) How Source Metadata can be defined manually with Data Object Editor? (5)

**Q.3 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

- (A) Write a short note on Dimensional Modeling. (5)
- (B) What is Module? Explain Source Module and Warehouse Target Module. (5)
- (C) Differentiate between Relational Model (star schema) and Multidimensional Model. (5)
- (D) Explain the procedure for creating cube in OWB. (5)

**Q.4 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

- (A) Write a short note on ETL (Extract, Transform and Load). (5)
- (B) What is difference between Data Object Editor and Mapping Editor (Canvas)? (5)
- (C) Explain the following operators: (5)
  - (i) Cube Operator
  - (ii) Dimension Operator
  - (iii) External Table Operator
  - (iv) Table Operator
- (D) Write the steps to connect source table to target using Joiner Operator with example. (5)

**Q.5 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

- (A) Write the steps to create New Mapping and Adding Source and Target Tables. (5)
- (B) What is Transformation Operator? How is UPPER() Transformation function used? (5)
- (C) Write the procedure to create and to load a lookup table. (5)
- (D) Write the steps for validating and generating in Design Center and Mapping Editor. (5)

**Q.6 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

- (A) Write a short on Metadata Change Management. (5)
- (B) Explain Multidimensional Database Architectures with suitable diagram. (5)
- (C) What is the purpose of snapshots? Explain the steps to create a new snapshots. (5)
- (D) Explain Real-Time Analytical Processing. (5)

**[TURN OVER]**

**Q.7 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

- (A) Draw and explain Data Warehouse Architecture. (5)
  - (B) List and explain the steps to configure the repository and workspaces. (5)
  - (C) Explain creating a Time Dimension with the Time Dimension Wizard. (5)
  - (D) What is staging in Data Warehouse? List and advantages and disadvantages of staging. (5)
  - (E) Explain the Object Details Window. (5)
  - (F) What is MOLAP? List and advantages of MOLAP over ROLAP. (5)
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**Question Paper**

**[CBSGS – 75:25 PATTERN]  
(OCTOBER – 2015)**

**PAPER - IV**

**ELECTIVE**

**IPR AND  
CYBER LAWS**



**Time:** 2 ½ Hours**Total Marks:** 75**N.B.:** (1) All Question are Compulsory.

(2) Make Suitable Assumptions Wherever Necessary And State The Assumptions Made.

(3) Answer To The Same Question Must Be Written Together.

(4) Number To The Right Indicates Marks.

(5) Draw Neat Labeled Diagrams Wherever Necessary.

(6) Use of Non – Programmable Calculator is allowed.

**Q.1 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

- (A) What are the basic principles of Patent Law? (5)
- (B) Explain Patent Application procedure. (5)
- (C) List out the basic principles of Trademark. (5)
- (D) List the main feature of copyright Act of 1957. (5)

**Q.2 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

- (A) Explain protection of copyrights. (5)
- (B) Explain the concept of Semiconductors. State and explain Semiconductor IC Layout Design Act. (5)
- (C) What are various Jurisdictional Issues in Domain Name Protection? (5)
- (D) Explain Disputes under Intellectual Property Rights. (5)

**Q.3 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

- (A) How the rights of a Patentee are enforced? What are the duties of a Patentee? (5)
- (B) What are the defenses available in case of infringement of Patents? (5)
- (C) Explain "Copyright is protection in form & not in idea". (5)
- (D) What are the defenses available in case of infringement of Trademarks? (5)

**Q.4 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

- (A) What are general obligations for enforcement of Intellectual Property Rights? (5)
- (B) Enlist and explain in brief the Criminal Remedies in enforcing Intellectual Property Rights. (5)
- (C) Explain the pros of IP Licensing. (5)
- (D) Explain the concept behind "Border Security Measures". (5)

**Q.5 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

- (A) Explain Cyber Jurisprudence. (5)
- (B) What are the issues of Copyrights in Digital Media? How they are Addressed? (5)
- (C) Explain the concept of Patent in Cyber World. (5)
- (D) What are the functions performed by the Certifying Authorities? Explain. (5)

**Q.6 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

- (A) What kinds of documents are not covered under IT Act, 2000? Explain briefly. (5)
- (B) What does chapter 4 of IT Act, 2000, "Attribution, Acknowledgment & Dispatch of Electronic records" cover? (5)
- (C) What is Computer Emergency Response Team? What are its functions? (5)
- (D) What does chapter 13 of IT Act, 2000, "Miscellaneous" talk about? (5)

**[TURN OVER]**

**Q.7 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

- (A) Discuss the features of Indian Trade Mark Act. (5)
  - (B) Illustrate with respect to Computer Software as Intellectual Property. (5)
  - (C) What are Design Objectives? Explain. (5)
  - (D) Categorize and explain the Licensing Format. (5)
  - (E) Explain the term "Privacy". What are the privacy issues for Data and Software? (5)
  - (F) When does the Certifying Authority suspend or revoke the Digital Signature Certificate? (5)
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**Question Paper**

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**PAPER - IV**

**ELECTIVE**

**PROJECT  
MANAGEMENT**

**Time:** 2 ½ Hours**Total Marks:** 75**N.B.:** (1) All Question are Compulsory.

(2) Make Suitable Assumptions Wherever Necessary And State The Assumptions Made.

(3) Answer To The Same Question Must Be Written Together.

(4) Number To The Right Indicates Marks.

(5) Draw Neat Labeled Diagrams Wherever Necessary.

(6) Use of Non – Programmable Calculator is allowed.

**Q.1 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

- (A) Explain the best practices listed it out by “Airline Software Council”. (5)
- (B) How does cost estimation serve as the Potential Solution for Modern Software Project Management? Explain. (5)
- (C) Explain the process of denouement. (5)
- (D) State the traits of modern process of development. (5)

**Q.2 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

- (A) List the phases of Life Cycle process. Explain the Elaboration Stage. (5)
- (B) Compare Meta and Macro processes. (5)
- (C) Explain architecture-first approach of Modern Software Management. (5)
- (D) Explain the concept of architecture from management perspective. (5)

**Q.3 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

- (A) Define the term Workflow. Explain requirement and Design Workflows. (5)
- (B) What are the check points of the process? Explain the sequence of check points. (5)
- (C) Explain Iteration Readiness and Assessment Review. (5)
- (D) Define Work Breakdown Structure. Explain the issues with conventional WBS. (5)

**Q.4 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

- (A) What is Software Change Orders (SCO)? Explain the basic fields of SCO. (5)
- (B) What are the responsibilities of Software Architecture Team? (5)
- (C) Explain Project Environment with features to prototyping. (5)
- (D) Define the term Configuration Baseline. What are two classes of Baseline? (5)

**Q.5 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

- (A) What are Management Indicators? Explain any two. (5)
- (B) Write a short note on Software Project Control Panel. (5)
- (C) Explain the concept of process maturity. (5)
- (D) Compare small commercial project with large, complex project on the basis of workflow priorities. (5)

**Q.6 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

- (A) Explain continuous integration approach of Modern Project Management. (5)
- (B) “80% of the errors are caused by 20% of the components”. Discuss with reference to early risk resolution. (5)
- (C) Compare conventional software process with Modern Iterative Process Framework. (5)
- (D) What do you understand by culture shifts with reference to Modern Process Transition? (5)

**[TURN OVER]**

**Q.7 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

- (A) What are the basic parameters of Software Economics? (5)
  - (B) List and explain the implementation set artifact. (5)
  - (C) Explain bottom-up approach of cost and Schedule Estimation. (5)
  - (D) Write a note on Round Trip Engineering. (5)
  - (E) Describe any four Quality Indicators in detail. (5)
  - (F) What are the benefits of next generation Cost Estimation Models? (5)
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**Question Paper**

**[CBSGS – 75:25 PATTERN]  
(OCTOBER – 2015)**

**PAPER - IV**

**ELECTIVE**

**GEOGRAPHIC  
INFORMATION  
SYSTEM**

Time: 2 ½ Hours

Total Marks: 75

N.B.: (1) All Question are Compulsory.

(2) Make Suitable Assumptions Wherever Necessary And State The Assumptions Made.

(3) Answer To The Same Question Must Be Written Together.

(4) Number To The Right Indicates Marks.

(5) Draw Neat Labeled Diagrams Wherever Necessary.

(6) Use of Non – Programmable Calculator is allowed.

**Q.1 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**(A) Convert the following into degrees:(i)  $45^{\circ} 15' 45''$ (ii)  $1745 \text{ rad}$ (B) Draw the line coverage using the following data structure:**Arc-Node List**

Arc	F-node	T-node
1	11	12
2	12	13
3	12	14
4	13	15
5	13	16
6	15	16
7	16	14

**Arc-Coordinate List**

Arc	Coordinates list
1	(0, 9) (3, 9)
2	(3, 9) (9, 9)
3	(3, 9) (3, 6) (2, 4) (3, 2)
4	(9, 9) (7, 5)
5	(9, 9) (8, 1)
6	(7, 5) (5, 3) (8, 1)
7	(8, 1) (5, 1) (3, 2)

(C) Explain with suitable example cell-by-cell Encoding Raster Data Structure.

(D) What is rasterization? Write the steps for it.

**Q.2 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

(A) List various data sources the can be used to create new geospatial data. Explain any one.

(B) Explain the terms:

(i) COGO

(ii) Geometric Transformation

(C) Write the four types of Transformation Methods. Also show their effects on a Rectangular Object.

(D) Explain the bilinear interpolation resampling method with suitable example.

**Q.3 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

(A) Explain file and Hierarchical Database with suitable example.

(B) Explain the following with respect to color:

(i) Hue

(ii) Value

(iii) Chroma

(C) Describe Choropleth Map and Chart Map with neat diagrams.

(D) What is visual hierarchy in map design? How is the hierarchy related to the map purpose?

[TURN OVER]

**Q.4 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

- (A) What is Descriptive Statistics? Explain. (5)  
 (B) Write a note on Spatial Data Query. (5)  
 (C) How Map Comparison can be used for Data Exploration? (5)  
 (D) What is the output of the following for a statement (slope = 3) AND (Aspect = 2) (5)

Aspect								Slope							
3	2	1	1	1	2	2	2	1	2	2	2	1	1	1	2
2	3	3	3	3	3	1	1	2	3	1	1	2	2	1	1
1	2	3	2	1	1	1	3	1	2	3	3	2	1	1	3
2	2	3	1	1	1	2	2	2	2	3	1	1	1	2	2
2	2	2	1	1	1	1	1	2	2	2	1	1	3	3	1
3	2	2	1	2	1	2	3	3	1	2	1	1	1	2	3
3	2	3	3	3	2	2	3	3	1	3	3	1	2	2	3
2	2	2	1	3	1	3	3	1	1	1	2	3	2	3	3

**Q.5 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

- (A) Explain the Density Estimation Local Method. (5)  
 (B) Explain Slivers from Overlay Operation. (5)  
 (C) What are Thiessen Polygons? Give an example. (5)  
 (D) Define the following: (5)  
     (i) *Nugget*  
     (ii) *Range*  
     (iii) *Sill*  
     (iv) *Partial Sill*  
     (v) *Anisotropy*

**Q.6 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

- (A) Describe how the semivariance can be used to quantify the spatial dependence in a dataset. (5)  
 (B) The root mean square (RMS) Statistics is commonly used for selecting an optional interpolation method. What does the RMS Statistics Measure? (5)  
 (C) What are the elements of Spatial Interpolation? (5)  
 (D) Explain Kriging Method in Spatial Interpolation. (5)

**Q.7 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

- (A) Describe the differences between the Geodatabase Data Model and Coverage Model in the terms of the geometric representation of the spatial features. (5)  
 (B) The nearest neighbor method is recommended for resampling Categorical Data. Why? (5)  
 (C) Explain why color symbols from a color printer do not exactly match those on the Computer Screen. (5)  
 (D) Write short note on Attribute Data Query. (5)  
 (E) Explain the differences between the Physical Distance and the Cost Distance. (5)  
 (F) Define the Local Methods. Explain the types of Local Methods in Spatial Interpolation. (5)